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(54) Title: GROUP BUYING METHOD AND APPARATUS

(57) Abstract:

GROUP BUYING METHOD AND APPARATUS  
CROSS REFERENCE TO RELATED APPLICATION

This application is related to the provisional application no. 60/194,886, entitled "GROUP BUYING METHOD AND APPARATUS," filed on April 6, 2000, the benefit of the filing date is hereby claimed and the entirety of which is incorporated herein by reference. This application is also related to the application serial no. 09/275,887, entitled "METHODS AND APPARATUS FOR DETERMINING NON-OBVIOUS SAVINGS IN THE PURCHASE OF GOODS AND SERVICES," filed on March 25, 1999, the entirety of which is incorporated herein by reference.

10 BACKGROUND OF THE INVENTION

A. Field of the Invention

This invention is related to data processing systems and, more particularly, to a method and apparatus for forming virtual groups to purchase, or sell products and services.

15 B. Description of Related Art

The traditional marketplace offers sellers a forum to sell products and services to the mass public. However, the distribution cost for the sale of the products and services through the traditional channel adds significantly to the sales price. Buyers purchase products and services according to their individual needs and preferences. For day-to-day 20 basic-living products such as clothes and foods, individual interest might depend on various factors, including the taste, brand, style, quantity, and price of the products. For services such as air travel, cruises, car rentals, or hotels, the individual interest might vary with the factors such as the date, time, origin, destination, service provider, and price of a certain travel service. The fragmented and isolated needs of purchasers increases the

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suppliers' distribution cost and, at the same time, raises the sales price of products and services.

Taking the marketplace of travel services as an example, the suppliers today continue to pursue lower cost distribution alternatives to maintain their competitiveness.

5 Many airlines, hotels, rental car companies, and other suppliers rely on travel agencies to distribute most of their services. These suppliers keep seeking ways of bypassing intermediary-based distribution channels, reducing or eliminating the agents' commissions, and distributing their services by a more profitable and competitive market model. However, the need to meet the purchasers' diverse preferences remains an  
10 obstacle to reducing the distributing cost of providing products and services.

To address this problem, companies are using the Internet to distribute products and services at reduced prices. In a network system such as the Internet, a computer equipped with a communication mechanism such as a modem and telephone connection makes the whole Internet immediately available to an end-user for accessing any kinds  
15 of information. A program called "browser," such as the Netscape Navigator from Netscape Corporation, makes it simple to traverse the vast network of information available on the Internet and, specifically, its subpart known as the "World Wide Web" ("WWW").

The architecture of the Web follows a conventional client-server model. The term  
20 "client" refers to a computer's general role as a requester of data, and the terms "server" refers to a computer's general role as a provider of data. Under the Web environment, a Web browser resides in the client and some specially formatted "Web documents" resides on the Internet (Web) server. The Web client and Web server communicate with protocol called "HyperText Transfer Protocol" (HTTP).

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In operation, a browser opens a connection to a server and initiates a request for a document. The server delivers the requested document, typically in the form coded in a standard "HyperText Markup Language" (HTML) format or the other formats such as JAVA®, XTMIL, PDF formats. After the document is delivered, the connection is closed. The browser displays the document or performs a function designated by the document. The communication between the client and the server also allows the client to submit request to the server, or submit personal information such as personal-identification data, or a credit card number.

Every day, more people gain access to the Web, and every day, more people shop on the Internet. Online shopping provides a level of convenience the people want, need and will soon demand. Electronic commerce or "e-commerce" is the term often used to refer, at least in part, to online shopping on the Web. E-commerce has become a unique opportunity for businesses of any size. E-commerce can expand a company's marketplace-and consequently, its database of the customers. By simply providing a Web server having information on the company's product offerings and the customer database, and linking the Web server to the Web, the company can track visits, sales, buying trends and product preferences-all at the customer level. The company can then present its customers with products they are most likely to buy-on an individual basis. For this reason alone most marketing professionals consider the Web to be one of the best direct-marketing tools.

But the number of retailers with online stores has grown exponentially every year, making it increasingly difficult for online shoppers to navigate the Web to locate a particular product at the best price. At one site, called the "Internet Mall," online shoppers can browse through more than 20,000 "virtual stores." This challenge for

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consumers also introduces a problem for merchants in designing campaigns to attract the consumers to the merchants' Web sites and away from their competitors' sites.

Certain known business methods, and conventional implementations of those methods, give the consumers greater control over a business deal by permitting the consumers to set the price they are willing to pay for selected products and services, such as air travel, car rentals, and other types of traveling-related commodities. The process generally involves receiving the information from the user that reflects the conditions required by the user. The system then seeks the best offer available on the Internet or the best offer available to travel agencies, among all the offers that meet the conditions.

Buying the same products in a group rather than on an individual basis creates another possibility of reducing the purchasing price for the same product or service. One of the basic market phenomena indicates the dependency between the unit price and the transacted quantity of a product or a service. A group of ten usually can get a lower price in buying the same product or service than an individual, or a group of only two or three members. A large group offering a bulk transaction rather than a piecemeal purchase gives the suppliers an incentive to offer discounts. Accordingly, some on-line systems provide services that support the group purchase of products, such as Mercata.com and Accompany.com. The consumers can get the benefit of increased group buying power by joining a known buying group. However, in the current group buying scenarios, a buyer can only elect to join a buying group for specific, single attribute products such as electronics, power tools, or household accessories. These service providers do not support multiple, buyer-defined attributes to serve as conditions for group membership. For example, an individual may join a group interested in a vacation package with very specific restrictions, such as a flight from Dallas-Fort Worth (DFW) to Las Vegas on

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September 1 and a stay of three nights at MGM Grand Hotel. Users may not, however, express an interest in joining a group interested in a three- or four-night package, any weekend in September, at any deluxe hotel in Las Vegas, paying a maximum of \$200.00.

Other systems, such as Priceline.com and Expedia.com, support the execution of purchases on behalf of each individual buyer when the buyer's target price is met. These systems do not, however, incorporate the dynamic creation of buyer groups based on the buyer-defined conditions. None of these systems allows the suppliers to monitor an evolving group demand, such as the size and the requests of a group, or to detect a group size that triggers a group discount. Therefore, the traditional approaches do not provide the capability of forming a group for the users with multiple attributes and flexible purchase conditions.

#### SUMMARY OF THE INVENTION

Methods consistent with the present invention provide a group buying process. According to one such method, each one of a plurality of users provides a request reflecting the conditions of purchase. A group of users is then formed with group purchase conditions, based on the conditions of purchase reflected by the request received from each user in the group. A set of suppliers is notified of the group purchase conditions. A supplier then sends an indication to provide an item to each user in the group. The present invention also provides, alternatively, a group sale process. Each one of a plurality of suppliers provides a sales request reflecting the conditions of sale. A group of suppliers is formed with group sale conditions, based on the conditions of sale reflected by the request received from each supplier in the group. A set of buyers is notified of the group sale conditions. A buyer then sends an indication to purchase an item from each supplier in the group. Moreover, the present invention also includes

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systems and computer-readable media that perform or cause to perform the aforementioned method of providing the group buying or group sale process.

#### BRIEF DESCRIPTION OF THE DRAWINGS

5 The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate an implementation of the invention and, together with the description, serve to explain the advantages and principles of the invention. In the drawings,

FIG. 1 shows a pictorial diagram of a computer network that implements systems consistent with the present invention;

10 FIG. 2 shows a computer network containing a client system and a server system;

FIG. 3 illustrates a block diagram of the architecture of a group processing server in a manner consistent with the principles of the present invention;

FIG. 4 shows a flow chart of the steps performed by a group processing server in a manner consistent with the principles of the present invention; and

15 FIG. 5 illustrates a block diagram of a system consistent with the present invention applied to a specific example of air travel.

#### DETAILED DESCRIPTION

Reference will now be made in detail to an implementation consistent with the present invention as illustrated in the accompanying drawings. Wherever possible, the 20 same reference numbers will be used throughout the drawings and the following description to refer to the same or like parts.

Introduction

Systems and methods consistent with the present invention enable potential buyers to define multiple conditions to purchase products or services. The systems and methods form a virtual group or groups of potential buyers that have the same or similar conditions to purchase the same product or service. The virtual group provides a powerful buy side cooperative, such as an air-travel cooperative, and allows the participating buyers to purchase at a group price without having the burden of seeking and managing a buying group. A buying group, selling group, or virtual group consistent with the present invention means a group of users having similar conditions for buying or selling products or services. The formation of a group allows the purchase or sale of products and services in a bulk transaction rather than in piecemeal transactions. The users in the group may have little or no awareness of information regarding other users. A user having flexible purchase conditions may belong to several groups at the same time and the participation in multiple groups increases the possibility of getting a quick deal with a good price.

The systems and methods notify potential suppliers of products or services with the information about groups and the purchase conditions of the groups. One or more potential suppliers may indicate their willingness to provide an item to each user in the group with the group purchase conditions. The system and methods may accept a supplier's offer according to preprogramed rules based on some timing or auction rules, or other types of principles. The system and methods may also negotiate the group purchase conditions with one or more potential suppliers.

After accepting the offer, the systems and methods consistent with the present invention may execute purchases on behalf of all users of the group and notify the users

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in the group. In the example of purchasing air-travel services, the process may include booking, ticketing, and relevant accounting proceedings. Alternatively, the systems and methods may provide the accepted supplier with relevant information and allow the supplier to complete the transactions with the users.

5 Systems and methods consistent with the present invention may take different forms of users' requests including, but not limited to, service and product reservations, price and availability inquiries, binding offers, and modifications of an existing offer, transaction, or inquiry. The systems and methods may perform various operations of groups, including creating a new group, canceling an existing group, adjusting a group 10 size, and rearranging the users among different groups.

15 The group buying or selling management agencies that operate the systems or methods consistent with the present invention may generate profits in several ways. An example includes, but is not limited to, modifying the conditions of users to add processing fees, requiring percentage loyalties from the suppliers based on transactional amounts, requiring membership fees from participating users or suppliers, or generating 20 incomes from advertisements or from selling the information of individuals or groups.

The systems and methods consistent with the present invention may offer flexibility in terms of group generation, management, or rearrangement. Based on the yield of a certain group transaction, the systems and methods may offer concessions to the conditions of some users, or provide additional incentives to some users, in order to expedite group formation or rearrangement. The systems and methods may flexibly 20 adjust yield management and incentives to the users or suppliers based on the market trend, the users' needs, the suppliers' needs, and the experience of operating the services.

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Adjustments may occur in an automatic way coded in the operating program that carries out the method of the present invention, or in a manual way by a system manager.

The systems and methods consistent with the present invention may utilize any information exchange network system based on different backbone infrastructures. An example includes, but is not limited to, the Internet, a group-based intranet, a wireless network, or more specifically, a wireless-application-protocol (WAP) based network, or even a traditional telephone or fax network. The following description illustrates, only as an illustrative example, the systems and methods consistent with the present invention by the specific embodiments that are based on the Internet. The scope of the present invention extends to equivalent systems or methods based on any information exchange networks.

#### Network Architecture

FIG. 1 illustrates a conceptual diagram of a computer network 100, such as the Internet. Computer network 100 comprises small computers (such as computers 102, 104, 106, 108, 110 and 112) and large computers (such as servers 120 and 122). In general, the small computers belong to "personal computers" or workstations that provide users' operations, including requesting data from other computers or servers on the network. Usually, the requested data resides in the large computers. In this scenario, the small computers operate as clients and the large computers operate as servers.

In this specification, the term "client" refers to a computer's general role as a requester of data, and the term "server" refers to a computer's general role as a provider of data. In general, the size of a computer and associated resources do not preclude the computer from acting as a client or a server. Furthermore, each computer may request

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data in one transaction and provide data in another transaction. Accordingly, the computer changes its role from a client to a server, or vice versa.

A client, such as the computer 102, may request a file from a server 120. Because the computer 102 directly connects with the server 120, for example, through a local area network, this request would not normally result in a transfer of data over what is shown as "network" of FIG. 1. The "network" of FIG. 1 represents, for example, the Internet, which consists of the interconnections of networks. The computer 102 may request for a file that resides in a server 122. In this case, the data transmits from the server 122 through the network to the server 120 and, finally, to the computer 102. The server 120 and server 122 may have a distance in-between very long, e. g., across continents, or very short, e. g., within the same building. Furthermore, in traversing the network, the data may transmit through several intermediate servers and many routing devices, such as bridges and routers.

FIG. 2 shows, in more detail, an example of a client-server system interconnecting through a network 100. In this example, a remote server system 222 interconnects through the network 100 with a client system 220. The client system 220 includes conventional components such as a processor 224, a memory 225 (e. g. RAM), a bus 226 which couples the processor 224 and the memory 225, a mass storage device 227 (e. g. a magnetic hard disk or optical storage disk) coupled to the processor 224 and the memory 225 through an I/O controller 228 and a network interface 229, such as a conventional modem, a cable modem or an ethernet card.

The server system 222 also includes conventional components such as a processor 234, a memory 235 (e. g. RAM), a bus 236 which couples the processor 234 and the memory 235, a mass storage device 237 (e. g. a magnetic or optical disk) coupled to the

processor 234 and the memory 235 through an I/O controller 238 and a network interface 239, such as a conventional modem, a cable modem, or an ethernet card. In the description below, any system may carry out the present invention through software that consists of executable instructions. The client system 220 or the server system 222 may 5 store the executable instructions on a computer readable medium, such as mass storage devices 227 and 237 respectively, or memories 225 and 235 respectively.

#### System Architecture and Operation

Systems consistent with the present invention employ a group processing server, for example, a server 300 shown in FIG. 3. The system may also include user interface 10 320 and a supplier interface 330. The server 300 communicatively connects with the user interface 320 and the supplier interface 330 that respectively facilitate communication with the users and the suppliers on the Internet. The system may have more than one user interfaces and more than one supplier interfaces to improve the communication, traffic handling capability, and compatibility of the system.

15 Server 300 includes a central processor 302, an aggregate demand datastore 310, a group datastore 312, and a yield management datastore 314. The central processor 302 communicatively couples with the aggregate demand datastore 310, the group datastore 312, and the yield management datastore 314. The central processor 302 performs a number of functions that will be explained in detail below, including, but not limited to, 20 managing and verifying user accounts, processing the users' requests and conditions, forming and managing groups, processing transactions and accounting works. Based on the system design, the central processor 302 may consist of a single processing unit that performs several functions, or of several processing units each handling part of the functions. In the instance of several processing units, different processing units may be

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located at the same or different locations and communicatively coupled with each other to exchange information.

The aggregate demand datastore 310 stores incoming requests and the accompanying conditions before the central processor 302 forms the requests into groups.

5 The group datastore 312 contains the group information of existing group and the associated group purchase conditions for each group. The group datastore 312 may also contain the historical data of the group information for management purposes. The yield management datastore 314 keeps the parameters, references, and other information necessary for the system's operations and decision-making processes.

10 As an example of system operation, a user submits a request for products or services, including the conditions that the user offers or has interest to offer. The server 300 receives the request through the user interface 320, including conditions such as the types of products and services, price, schedule, quantity, and also the tolerances of some or all of the conditions. The aggregate demand datastore 310 stores the request and any related information. The central processor 302 accesses the information in the aggregate demand datastore 310 and the group datastore 312 to determine whether to form a new group of similar conditions, to increase or decrease the size of an existing group, or to cancel an existing group. The central processor 302 may also access the yield management datastore 314 to acquire necessary parameters or references in modifying the conditions of requests, adding processing fees, or providing concessions to the conditions of requests.

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20

The server 300 provides suppliers with the group information and the group purchase conditions through the supplier interface 330. The suppliers may indicate their willingness in providing items according to the group purchase conditions. In the

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instances where multiple suppliers express interest in the same group through the supplier interface 330, the central processor 302 may determine which supplier wins a deal with the group. To decide which supplier takes the group, the central processor 302 may provide a bidding process according to various schemes, such as a time-competing, 5 price-competing, negotiating scheme, or a combination of any of these schemes.

FIG. 4 illustrates a flow chart of the operations performed by the server 300 in a manner consistent with the present invention. At the step 410, the server 300 receives a request that reflects conditions of purchase from a user through the Internet. In the application of World Wide Web, the server 300 may provide a HTML form to the user 10 for submitting these conditions. Alternatively, the user may submit the request through e-mail, fax, or phone call by specifying the item and the related conditions. The user may include an individual or corporation who expresses interests in purchasing the products or services. In the example of air travel, a corporation or employer may participate as a user to request air-travel service for employees or the travelers for corporate-related 15 businesses. The server 300 may allow the access of multiple users at the same time and receive a request from each user separately. The aggregate demand datastore 310 in FIG. 3 stores the incoming requests and accompanying conditions before the server 300 processes the information to update the group information.

The user may submit different types of requests according to the user's needs or 20 willingness to purchase an item. As a result, the request may include characterization information to identify whether the request belongs to a reservation, a price or availability inquiry, a modification of a previous reservation, a modification of a previous inquiry, or a combination of any of these requests. In general, the conditions of purchase for a

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request include, but are not limited to, the information such as the item, quantity, price, and the tolerance of some or all the conditions.

In the example of service items, the conditions may selectively include some other information such as the schedule of providing a service, and the tolerance of the schedule.

5 In the specific example of air-travel service, the request might include the information such as the quantity, price, and the travel itinerary information such as flight schedule, origin and destination cities, and also the tolerance of some or all of the conditions.

The server 300 processes requests for various types of products and services upon a user's request. A user may have an interest in purchasing a service such as air travel, 10 or a cruise, car rental, hotel, concert ticket, theme park admission, and dining service.

As an illustrative example, several users indicate their interest in traveling from Dallas-Fort Worth (DFW) to Las Vegas over a variety of September/October dates, staying for three to five nights, with a price targeting from \$150 to \$200 per person. A single user may belong to multiple groups depending on the conditions of purchase that

15 the user specifies. Users interested in either three or four nights of stay may belong to, for example, users of at least two different groups – one group wanting a three-night stay, another group wanting a four-night stay. The same user who has the flexibility to travel at two different weekends, may belong to four groups.

At the step 414 of FIG. 4, the server 300 then forms a group of users and group 20 purchase conditions according to the conditions specified by the users. The central processor 302 accesses the aggregate demand datastore 310 and forms or updates the group information based on the conditions of purchase reflected by the request received from each user in the group. The central processor 302 forms group or groups for the users who have the same or similar conditions of purchase. In the example of air travel,

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the users in the same group might have the same or similar schedule, origin city, and destination city.

The step 414 of forming a group may involve several operations of managing group information. Based on the conditions of the incoming requests, the operations may include creating a new group, increasing the size of an existing group, decreasing the size of an existing group, cancelling an existing group, or a combination of any of these operations. The server 300 also determines which operation to perform based on the prescribed rule-logic in the server 300, such as the appropriate size of a virtual group, and the minimum and maximum limits of the group size for different types of products and services.

Assume, for example, that the minimum group size to form a buying cooperative for a specific air-travel service is ten. The server 300 forms a new group upon a tenth request for a specific origin, destination, travel date and time. The server 300 increases the size of an existing group upon a new request having the same or similar conditions with the existing group. The server 300 decreases the size of an existing group upon a request to cancel or modify a previously submitted request. When the size of an existing group decreases to become smaller than the minimum limit of group size, the server 300 may decide to cancel the group and send the requests in the cancelled group back to the aggregate demand datastore 310 or place the users' requests in other groups.

Moreover, a user with flexible conditions may qualify for several groups. A user may also qualify for several groups with different prices because an interest in buying a \$300 ticket implies an interest in buying the same ticket at any price less than \$300. Accordingly, a user in a group may have a requested price different from a requested price of the group. For example, three users that respectively have requested prices of

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\$200, \$300, and \$400, may qualify for a group that requires for a price of \$200, because the price of \$200 meets or is lower than each user's request. Therefore, a user might get a product or service at a lower price than what the user requests.

At step 416, the server 300 determines whether to notify each user in the group of the group formation and that the user is already in the group. The server 300 may allow a user to choose whether the user wants the server 300 to notify the user when the user is in the group. In the example of submitting a request through the World Wide Web, the server 300 may provide a check box that allows the user to check "please notify me when I am in a group." In general, the server 300 may set a default rule of not notifying a user unless the user indicates otherwise. Therefore, the server 300 may skip the step 416 and proceed with the notifying step 418 after the group formation step 414.

At step 418 of FIG. 4, the server 300 notifies a set of suppliers of the group information and the group purchase conditions. The server 300 notifies the suppliers after the server 300 creates, modifies, or cancels group buying opportunities as described above. The server 300 may notify the suppliers in various ways according to the system design or the suppliers' preferences, such as fax, e-mail, and multicast messaging over a network or the Internet. Notification includes all information needed for the suppliers to make a volume-based pricing decision including, but not limited to, the group information, the group purchase conditions, and bidding rules, if any. The server 300 may send the group buying opportunities selectively to only some suppliers, according to the types of products and services that the suppliers offer. Alternatively, the suppliers may also have a process to detect if each group buying opportunity matches any of the suppliers' available products and services.

As an example, the server 300 might have a group of users that are interested in traveling from Dallas-Fort Worth (DFW) to Las Vegas on certain dates, staying for four nights, with a targeting price of \$200 per person. Based on the information, the server 300 may notify suppliers, such as scheduled service carriers serving the required markets, 5 scheduled charter operators serving the required markets, nonscheduled private charter operators willing to serve the request, hotel chains with properties at the required destinations, car rental companies serving the required destinations, and even agencies organizing related tours.

At step 420, the server 300 receives an indication from a supplier to provide an 10 item to each user in the group. Depending on the interests of suppliers in a certain group, the server 300 might receive more than one indications of willingness to provide the item, from more than one of the suppliers. As described above in the notifying step 418, the notified information may include bidding rules. Therefore, the indication receiving step 420 may also include a process to select one supplier out of several suppliers for a certain 15 group, according to the bidding rules. Examples of bidding rules include, but are not limited to, taking a first supplier that meets the group purchase conditions, initiating an auction and using a lowest bid that meets the group purchase conditions at the close of the auction, negotiating the group purchase conditions with at least one supplier, and a combination of any of these schemes. Either human agents or software agents 20 representing both buying and selling parties may commence the negotiation process. In the instances such as auctions or negotiations, the group might get a deal that provides a price below the target price prescribed in the group purchase conditions. Therefore, the purchase conditions for each item in the final deal could be more favorable than the

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purchase conditions of each item reflected by the users' requests in the group, especially in terms of purchasing price.

Moreover, some users might get a better price than what they request simply because they belong to a group having a lower price than what they request. As the 5 example illustrated above, a user having a requested price of \$400 may belong to a group having a requested group price of \$200 and get a better bargain than what the user requests.

After the step 420, the server 300 may optionally proceed with the operations necessary for completing transactions. Alternatively, the server 300 may simply provide 10 the supplier with all the information necessary for completing the transactions, and allow the supplier to complete the transactions with the users in the group.

At step 422, in the instance where the server 300 opts to proceed with the transactions, the server 300 notifies each user in a group about a supplier's indication to provide the requested item. For a user who provides a firm offer, the user knows that a 15 binding contract has been formed based on a supplier's acceptance.

At step 424, the server 300 then proceeds to complete a transaction between each user in the group and the supplier. The operations involved in completing each transaction depend on the type of products or services, and also on the type of request submitted by the user. For a request of buying a product or service, the server 300 forms 20 a contract between a user and the supplier and reserves the product or service as requested by the user. However, for a request to modify a previously-closed transaction, the server 300 reserves the product or service as requested and cancels the previously- reserved product or service. Taking air-travel service as an illustrative example, the operations may include, but not limited to, creating new personal name records (PNRs),

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rebooking itineraries in existing PNRs, issuing new tickets, voiding or refunding issued tickets, updating accounting information, updating information to reporting systems, notifying the users of updated itineraries and prices, or a combination of any of these operations.

5           Alternatively, the server 300 may perform step 426 and give the supplier necessary information for completing a transaction. The information allows the supplier, rather than the server 300, to complete the transaction with each user in a group. As an example, the supplier may notify each user in the group of the supplier's acceptance. For a user who provide a firm offer, the user knows that a binding contract has been formed  
10           based on the supplier's acceptance.

Proceeding in a similar way as the server 300 does, the supplier then proceeds to complete the transaction with each user in the group. As noted above, the operations involved in completing each transaction depend on the type of products or services and the type of requests submitted by a user. In the example of air-travel service, the  
15           operations of a supplier may include, but are not limited to, creating new personal name records (PNRs), rebooking itineraries in existing PNRs, issuing new tickets, voiding or refunding issued tickets, updating accounting information, updating to reporting systems, notifying the users of the updated itineraries and prices, and a combination of any of these operations.

20           At an optional step 412, the server 300 modifies the conditions of purchase of the users after receiving the users' requests in the step 410. The server 300 may perform the step 412 with different schemes for different yield management purposes. First, the server 300 may change the pricing condition to add a processing fee or service charge to generate revenue for an intermediate agency that operates the server. The server 300 can

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make the fee invisible to the users. For example, the server 300 may put a user who has a target price of \$300 into a group with a targeting price of \$280. Therefore, the intermediate agency gets a processing fee of \$20 once the user gets a deal of \$300 when the supplier charges only \$280. The server 300 may have a prescribed rule or rules within the system in adding a processing fee by changing the purchase conditions of a user. The server 300 may also have the discretion in making the fee visible or invisible to a user.

In addition to adding a processing fee, the systems and methods consistent with the present invention may generate revenue for the intermediate agency by various ways, such as collecting advertisement charges, membership fees of users, membership fees of participating suppliers, processing fees by transactions from users, loyalties by transactions from suppliers, or incomes generated from negotiating supplying prices with the suppliers.

The condition-modifying step 412 may also implement a scheme for providing concessions to the conditions of the users. As an example, the server 300 may have eight or nine users with similar conditions to buy a certain product or service when that specific product or service requires a minimum buying group of ten. If the eight or nine users have a targeting price of \$100, with processing fee included, a user with a targeting price of \$95, with or without processing fee included, may not be able to join the group. However, the server 300 may provide concessions to the conditions of the last one or two users to promote the formation of a group. The principles for providing concessions may be stored in the yield management datastore 314. Therefore, the server 300 may promote the group formation in order to have a quick deal by providing concessions to the last one or more users necessary for group formation. Alternatively, the server 300 may provide

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other incentives to encourage an user to submit a request with certain conditions. In the example of air travel, the incentives might include, but are not limited to, awarding loyalty program points or miles and providing free or discounted upgrades, discounts for hotels or car rentals, or any thing that might add up the value of service to the users or the potential users.

10

In addition, the condition-modifying step 412 may also add or modify the conditions of the users' requests to provide the users with potential savings. The server 300 may make the conditions of the users' request more flexible or offer more alternatives. In the example of the air-travel service, the condition-modifying step 412 may add alternative origin and departure cities to the original conditions of a user's request. The addition of alternative conditions provide chances of savings that are not obvious to the users and increases the chances to get a quick or good deal for the users. The details of providing non-obvious savings in the purchase of goods and services can be found in an application that is related to the present invention. The related application "METHODS AND APPARATUS FOR DETERMINING NON-OBVIOUS SAVINGS IN THE PURCHASE OF GOODS AND SERVICES," was filed on March 25, 1999, with 15 a serial number of 09/275,887.

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FIG. 5 illustrates a block diagram of a system consistent with the present invention applied to a specific example of air travel. At the user side 510, travelers 512 may make different kinds of requests, such as creating a new reservation and specifying the conditions for changes (514), creating a new travel request and specifying parameters for booking reservation (516), modifying or cancelling an existing reservation (518), and modifying or cancelling an existing travel request (520). Each request is communicated through a user interface 320. The group processing server 300 processes these requests

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in order to register a new potential group member (530), or to modify or cancel an existing group member registration (532).

The aggregate demand datastore 310 stores the users' requests. The server 300 accesses the aggregate demand datastore 310 to identify and create a virtual group or groups among registered travelers (534), or to modify or cancel a virtual group or groups based on changes to registered travelers (536). The operation also involves accessing the group datastore 312 by the server 300.

The server 300 then notifies suppliers, through the supplier interface 330, of the creation, modification, or cancellation of a group (538) by accessing data from the group datastore 312. The supplier side may analyze and submit bids in response to group sales opportunities (552), by accessing the sell side yield management datastore 554. After the server 300 receives supplier's indication and determines which supplier to provide a group with a requested item, the server 300 may complete a transaction by performing operations such as booking or rebooking seats, issuing tickets, deleting demands, and notifying travelers of new itineraries (540). However, it is emphasized that this specific example of air travel intends to serve as an illustration of one of the embodiments of the present invention, and does not limit the scope of the present invention to the specific operations as described.

In addition to the operations discussed above, the present invention also allows the formation of a virtual group of suppliers of products and services, and allows providing the information to potential buyers who might have interest in buying products and services in a bulk transaction. As an example, an airline might have a few seats available and did not find a matching offer. A buyer might need ten seats because of a

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last minute travel decision and can not get all of the ten seats at certain schedule from one airline.

In the instances of forming selling groups, the methods consistent with the present invention operate the process in a similar way as forming buying groups. Each one of a plurality of suppliers provides a sales request reflecting the conditions of sale. A group of suppliers is formed with group sale conditions, based on the conditions of sale reflected by the request received from each supplier in the group. A set of buyers or potential buyers is notified of the group sale conditions. One or more buyers than send an indication to purchase an item from each supplier in the group.

As an illustrative example, the server 300 may receive sales requests from several airlines who have a few seats available, and form a virtual "selling group" of suppliers of air travel services. A group is created and may consist of ten seats from four different airlines with similar schedule, flying from Dallas-Fort Worth (DFW) to Washington, D.C. The server 300 then provides the group information to potential buyers. The server 300 may reach a deal between the suppliers and a buyer after receiving indication or acceptance to buy from one or more buyers. By providing the service of forming virtual selling groups, the server 300 accommodates the different needs of some buyers and sellers, and, therefore, increases the possibility of generating revenues by offering a broad scope of distinguished services.

## 20 Conclusion

Systems and methods consistent with the present invention provide a scheme for the buyers to reduce cost of purchasing products and services. At the same time, the systems and methods also provide a scheme for the suppliers to distribute the products and services. The systems and methods examine the users' requests with single or

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multiple conditions for purchase, and form virtual groups according to the conditions of requests. The systems and methods notify the suppliers with the group information and receive indications from the suppliers that are willing to meet the group purchase conditions.

5        The systems and methods may obtain and distribute information, such as the users' requests, the group information, and the suppliers' indication, through any kinds of information exchange networks. As an example, the systems and methods may notify the suppliers of the group information through e-mail, fax, or a message broadcast system.

10      The systems and methods consistent with the present invention also provide various yield management techniques for the intermediate agencies to generate revenue. The systems and methods may add processing fees visible or invisible to the users. The systems and methods may promote group formations or any other group re-arrangements by providing concessions or buying incentives.

15      Therefore, the systems and methods consistent with the present invention forms virtual groups and seek suppliers according to users' requests. A user may set multiple attributes with flexible conditions without having to select a certain group under a set of pre-existing, fixed conditions. The systems and methods reduce the users' purchasing efforts and costs, increases the suppliers' distribution channels, and raise the competitiveness of intermediate agencies in providing cost-effective services. Moreover, 20      the systems and methods, based on similar operations and principles, may also form a virtual selling group of suppliers and notify potential buyers.

The foregoing description of an implementation of the invention has been presented for purposes of illustration and description. It is not exhaustive and does not

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limit the invention to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from practicing the invention.

For example, the described implementation includes software but the present invention may be implemented as a combination of hardware and software or in hardware alone.

5 The invention may be implemented with both object-oriented and non-object-oriented programming systems. Additionally, although aspects of the present invention are described as being stored in memory, one skilled in the art will appreciate that these aspects can also be stored on other types of computer-readable media, such as secondary storage devices, like hard disks, floppy disks, or CD-ROM; a carrier wave from the  
10 Internet or other propagation medium; or other forms of RAM or ROM. The scope of the invention is defined by the claims and their equivalents.

## WHAT IS CLAIMED IS:

1. A method of providing a group buying process, the method comprising the steps, performed by a processor, of:

5 receiving a request reflecting conditions of purchase from each one of a plurality of users;

forming a group of users and group purchase conditions, based on the conditions of purchase reflected by the request received from each user in the group;

notifying a set of suppliers of the group purchase conditions; and

10 receiving an indication from a supplier to provide an item to each user in the group.

2. The method of claim 1, wherein the method further comprises, after the step of receiving the indication, a step of notifying each user in the group of the supplier's indication to provide the item.

15 3. The method of claim 1, wherein the method further comprises, after the step of forming the group of users, a step of determining whether to notify each user in the group that the user is in the group.

4. The method of claim 1, wherein the group purchase conditions per unit item are more favorable than the conditions of purchase per unit item reflected by a request received from a user in the group.

20 5. The method of claim 1, wherein the conditions of purchase comprise the information selected from quantity, price, schedule, the tolerance of the conditions, and a combination thereof.

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6. The method of claim 1, wherein the request of each user comprises characterization information selected from a reservation, an inquiry, a modification of a previous reservation, a modification of a previous inquiry, and a combination thereof.

5 7. The method of claim 1, wherein the request of each user comprises a buying request for the service selected from air travel, cruise, car rental, hotel, concert ticket, theme park admission, dining service, and a combination thereof.

10 8. The method of claim 1, wherein the request of each user comprises a buying request for air travel, and the conditions of purchase of the buying request include the information selected from quantity, price, schedule, travel itinerary, the tolerance of the conditions, personal identification information, and a combination thereof.

15 9. The method of claim 6, wherein the method further comprises, after the step of taking the acceptance, at least one step selected from booking itineraries, rebooking itineraries, issuing tickets, voiding issued tickets, updating accounting information, notifying the users of the users' reservations, notifying the users of the users' updated itineraries, and a combination thereof.

10. The method of claim 1, wherein the step of forming the group comprises at least one operation selected from creating a new group, increasing the size of an existing group, decreasing the size of an existing group, cancelling an existing group, and a combination thereof.

20 11. The method of claim 1, wherein the step of receiving the indication, upon receiving more than one indications from more than one suppliers, further comprises a step of determining a supplier to provide the item to each user in the group, the determining step comprises at least one operation selected from taking a first supplier that meets the group purchase conditions,

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initiating an auction and using a lowest bid that meets the group purchase conditions at the closing of the auction,  
negotiating the group purchase conditions with at least one supplier, and  
a combination thereof.

5 12. The method of claim 1, wherein the method further comprises, before the step of forming the group, a step of modifying the conditions of the requests.

13. The method of claim 1, wherein the method further comprises, before the step of forming the group, a step of adding processing fees to the conditions of the requests.

10 14. The method of claim 1, wherein the step of modifying the conditions of the requests include adding alternative origin and departure cities to the conditions of a travel request.

15. The method of claim 1, wherein the method further comprises, before the step of forming the group, a step of providing concessions to the conditions of purchase of at least one of the requests.

15 16. A method of providing a group sale process, the method comprising the steps, performed by a processor, of:

receiving a sales request reflecting conditions of sale from each one of a plurality of suppliers;

20 forming a group of suppliers and group sale conditions, based on the conditions of sale reflected by the request received from each supplier in the group;

notifying a set of buyers of the group sale conditions; and

receiving an indication from a buyer to purchase an item from each supplier in the group.

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17. A computer readable medium containing instructions for controlling a computer system to perform a method for providing a group buying process, the method comprising:

receiving a request reflecting conditions of purchase from each one of a plurality of users;

5 forming a group of users and group purchase conditions, based on the conditions of purchase reflected by the request received from each user in the group;

notifying a set of suppliers of the group purchase conditions; and

receiving an indication from a supplier to provide an item to each user in the 10 group.

18. The computer readable medium of claim 17, wherein the method further comprises, after the step of receiving the indication, a step of notifying each user in the group of the supplier's indication to provide the item.

19. The computer readable medium of claim 17, wherein the method further 15 comprises, after the step of forming the group of users, a step of determining whether to notify each user in the group that the user is in the group.

20. The computer readable medium of claim 17, wherein the group purchase conditions per unit item are more favorable than the conditions of purchase per unit item reflected by a request received from a user in the group.

20 21. The computer readable medium of claim 17, wherein the step of forming the group comprises at least one operation selected from creating a new group, increasing the size of an existing group, decreasing the size of an existing group, cancelling an existing group, and a combination thereof.

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22. The computer readable medium of claim 17, wherein the step of receiving the indication, upon receiving more than one indications from more than one suppliers, further comprises a step of determining a supplier to provide the item to each user in the group, the determining step comprises at least one operation selected from

5 taking a first supplier that meets the group purchase conditions,

initiating an auction and using a lowest bid that meets the group purchase conditions at the closing of the auction,

negotiating the group purchase conditions with at least one supplier, and a combination thereof.

10 23. The computer readable medium of claim 17, wherein the method further  
comprises, before the step of forming the group, a step of modifying the conditions of the  
requests.

24. A computer readable medium containing instructions for controlling a computer system to perform a method for providing a group sale process, the method comprising:

receiving a sales request reflecting conditions of sale from each one of a plurality of suppliers;

forming a group of suppliers and group sale conditions, based on the conditions of sale reflected by the request received from each supplier in the group;

20 notifying a set of buyers of the group sale conditions; and

receiving an indication from a buyer to purchase an item from each supplier in the group.

25. A system for providing a group buying process, the system comprising:

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means for receiving a request reflecting conditions of purchase from each one of a plurality of users;

means for forming a group of users and group purchase conditions, based on the conditions of purchase reflected by the request received from each user in the group;

5 means for notifying a set of suppliers of the group purchase conditions; and

means for receiving an indication from a supplier to provide an item to each user in the group.

26. The system of claim 25, further comprising:

means for notifying each user in the group of the supplier's indication to provide 10 the item.

27. The system of claim 25, further comprising:

means for determining whether to notify each user in the group that the user is in the group.

28. The system of claim 25, wherein the means for forming the group comprises:

15 means for creating a new group;

means for increasing the size of an existing group;

means for decreasing the size of an existing group;

means for cancelling an existing group.

29. The system of claim 25, further comprising means for modifying the

20 conditions of the requests.

30. A system for providing a group sale process, the system comprising:

means for receiving a sales request reflecting conditions of sale from each one of a plurality of suppliers;

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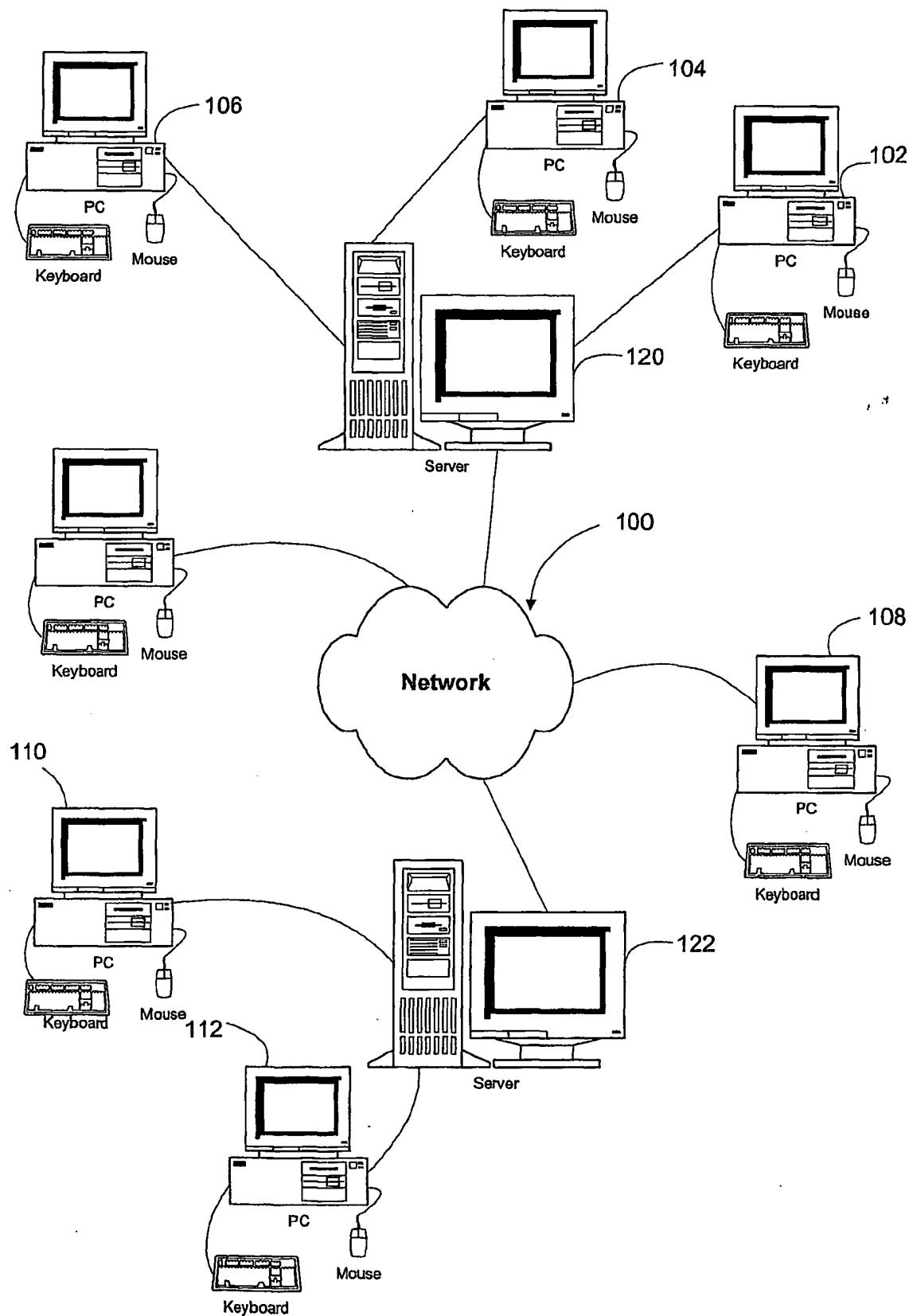
means for forming a group of suppliers and group sale conditions, based on the conditions of sale reflected by the request received from each supplier in the group;

means for notifying a set of buyers of the group sale conditions; and

means for receiving an indication from a buyer to purchase an item from each supplier in the group.

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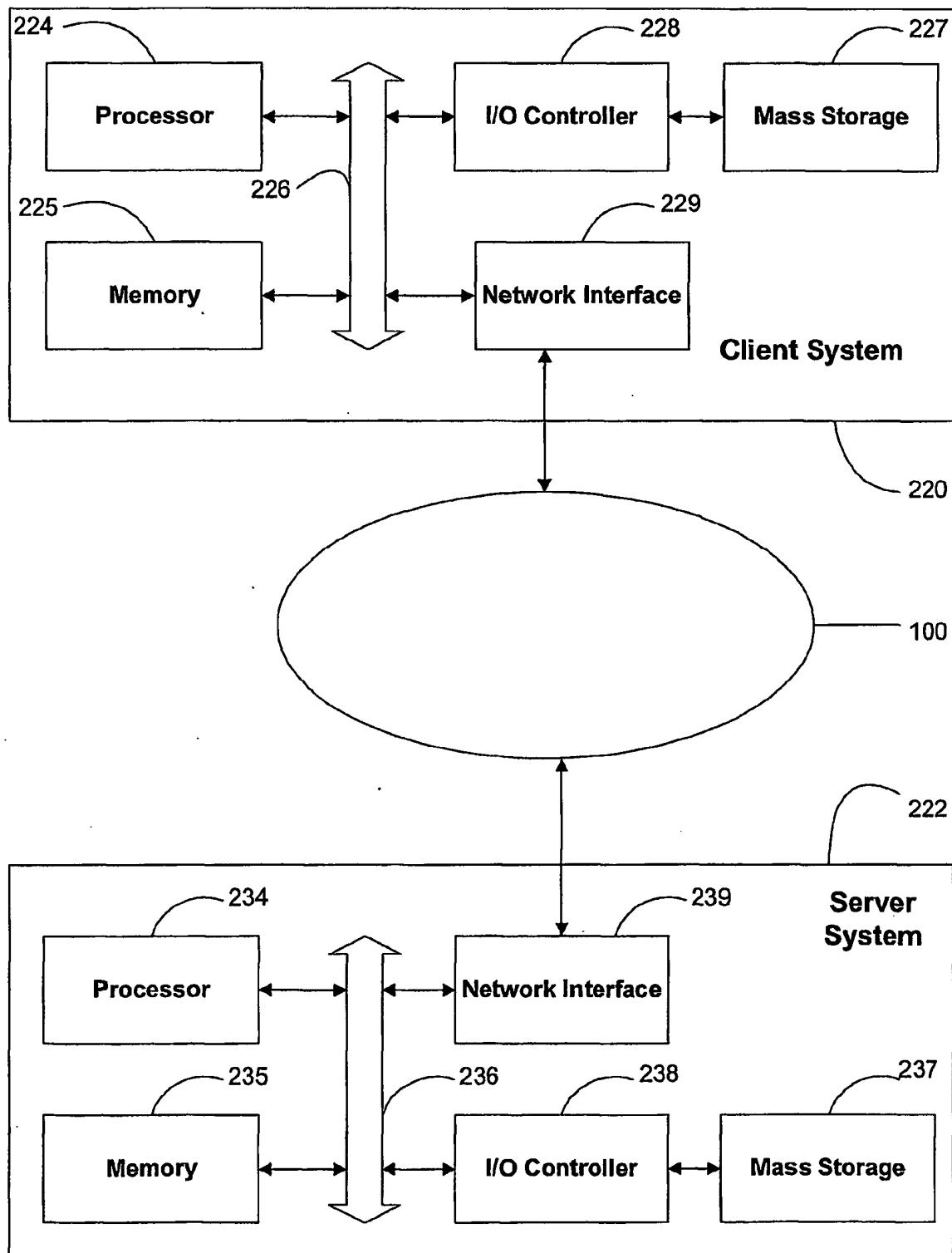


FIG. 2

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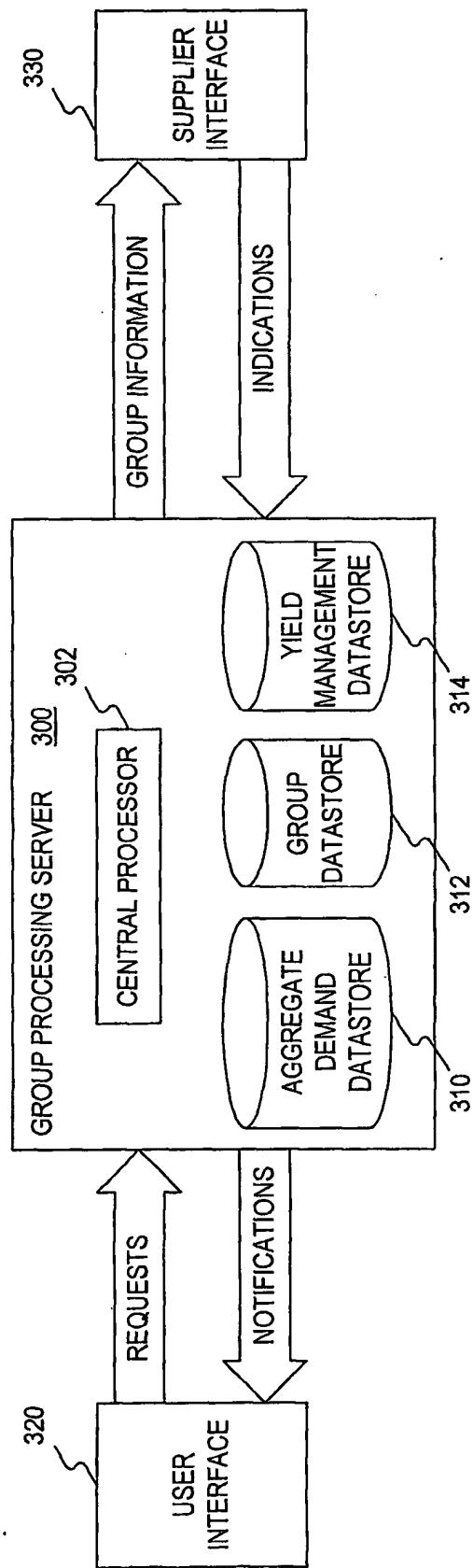


FIG. 3

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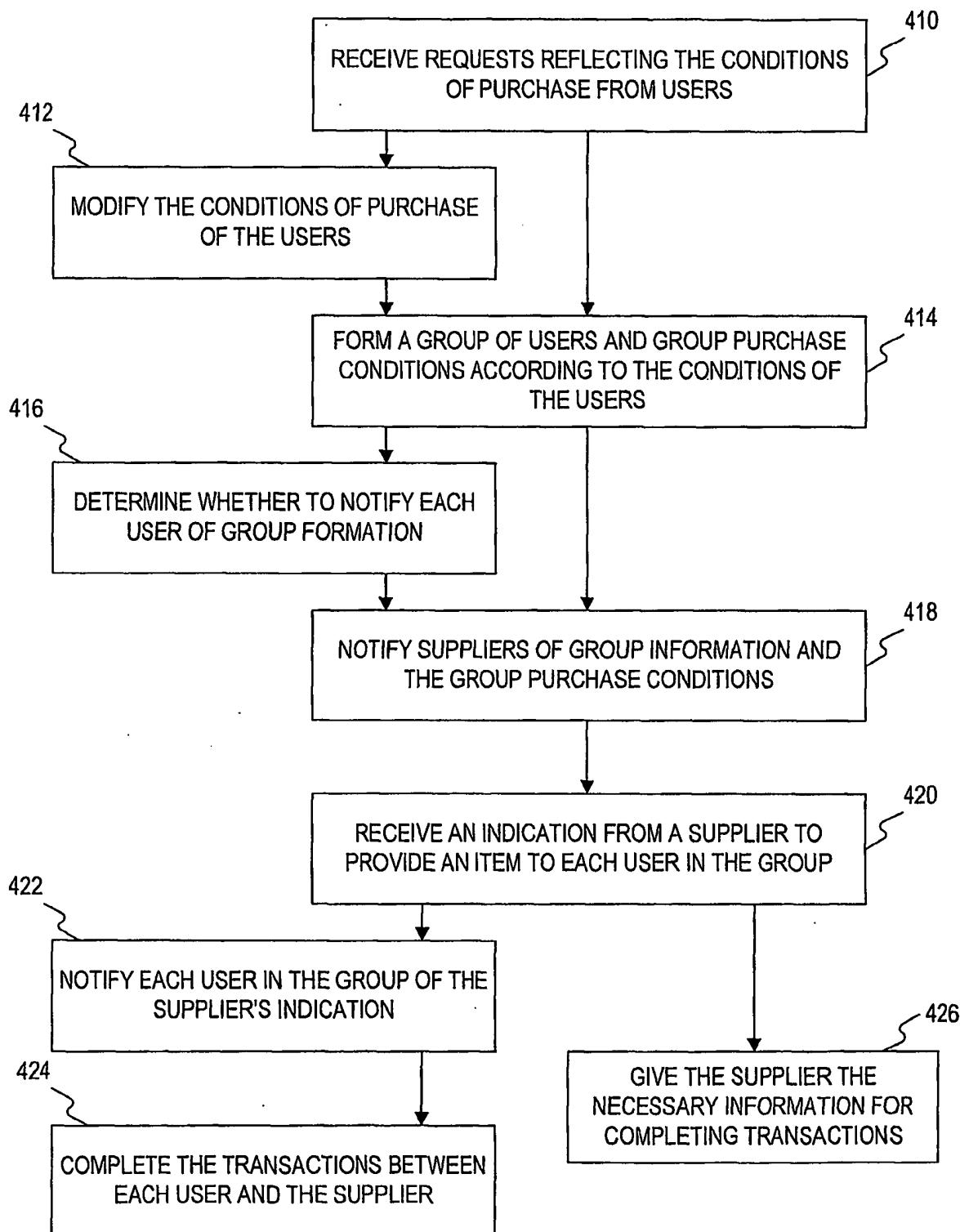


FIG. 4

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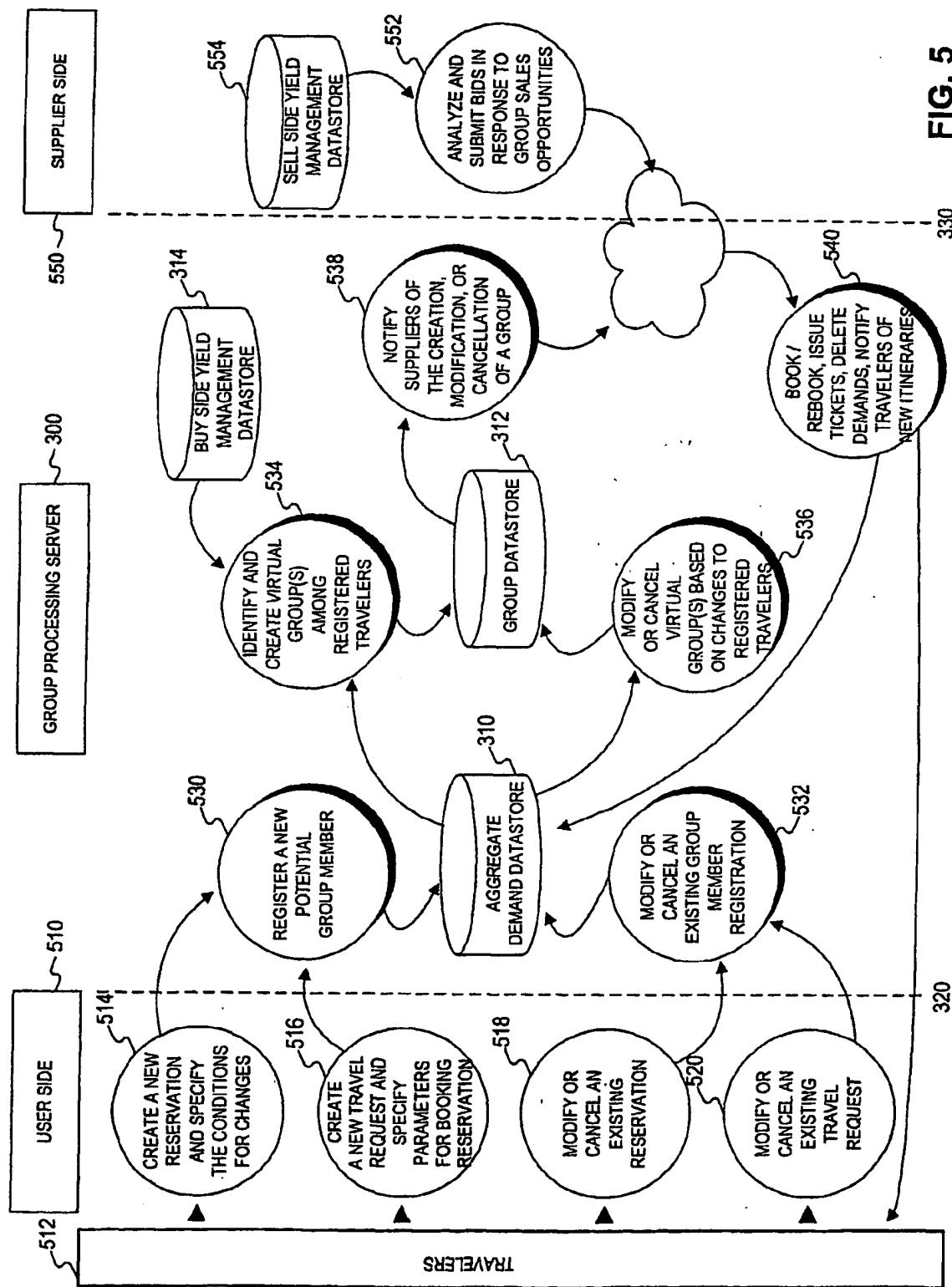


FIG. 5

**PATENT COOPERATION TREATY**  
**PCT**

**DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT**

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

Applicant's or agent's file reference <b>70991374-304</b>	IMPORTANT DECLARATION	Date of mailing (day/month/year) <b>19/06/2001</b>
International application No. <b>PCT/US 01/ 11190</b>	International filing date (day/month/year) <b>06/04/2001</b>	(Earliest) Priority date (day/month/year) <b>06/04/2000</b>
International Patent Classification (IPC) or both national classification and IPC <b>G06F17/60</b>		
Applicant <b>SABRE INC.</b>		

This International Searching Authority hereby declares, according to Article 17(2)(a), that **no International search report will be established on the International application for the reasons indicated below**

1.  The subject matter of the International application relates to:

- a.  scientific theories.
- b.  mathematical theories
- c.  plant varieties.
- d.  animal varieties.
- e.  essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
- f.  schemes, rules or methods of doing business.
- g.  schemes, rules or methods of performing purely mental acts.
- h.  schemes, rules or methods of playing games.
- i.  methods for treatment of the human body by surgery or therapy.
- j.  methods for treatment of the animal body by surgery or therapy.
- k.  diagnostic methods practised on the human or animal body.
- l.  mere presentations of information.
- m.  computer programs for which this International Searching Authority is not equipped to search prior art.

2.  The failure of the following parts of the International application to comply with prescribed requirements prevents a meaningful search from being carried out:

the description       the claims       the drawings

3.  The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:

the written form has not been furnished or does not comply with the standard.  
 the computer readable form has not been furnished or does not comply with the standard.

4. Further comments:

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <b>María Rodríguez Növoa</b>
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 203

The subject-matter claimed in claims 1-16 falls under the provisions of Article 17(2)(a)(i) and Rule 39.1(iii), PCT, such subject-matter relating to a method of doing business.

Claims 17-30 relate to a conventional system for performing the business method of claims 1-16. Although these claims do not literally belong to the method category, they essentially claim protection for the same commercial effect as the method claims. The International Searching Authority considers that searching this subject-matter would serve no useful purpose. It is not at present apparent how the subject-matter of the present claims may be considered defensible in any subsequent examination phase in front of the EPO as International Preliminary Examining Authority with regard to the provisions of Article 33(1) PCT (novelty, inventive step); see also Guidelines B-VII, 1-6).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.